

Listing of Claims:

Claims 1-25 (Canceled).

26. (New) A method for creating a copy of data in a system comprising a plurality of storage devices, a control unit operable to control said storage devices, and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said method comprising:

creating a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:

copying data from said first logical volume to a first location in said memory;

copying said data from said first location in said memory to a second location in said memory; and

copying said data from said second location in said memory to said second logical volume.

27. (New) The method of claim 26 further comprising: if a write request is issued to said first logical volume after creating a copy has commenced,

creating a copy of data in said first logical volume to said second logical volume before said data in said first logical volume is modified by said write request.

28. (New) The method of claim 26 wherein said relationship further comprises: a pairing of a primary volume and a secondary volume.

29. (New) The method of claim 26 further comprising: modifying a location identifier defined in each logical volume.

30. (New) The method of claim 26 further comprising: making said second logical volume accessible after said creating a copy of data in said specified first logical volume into said second logical volume.

31. (New) The method of claim 26 further comprising:
tracking modified data, if a write request is issued to said first logical volume or said second logical volume after the copy processing is completed, and
copying said modified data based upon said tracking, if creating a copy is directed again to the pair in copy completed status.

32. (New) The method of claim 26 wherein data in said secondary logical volumes comprises a series of historical records of said primary volume, said historical records obtained by switching said secondary logical volumes one after another.

33. (New) The method of claim 26 further comprising:
displaying information about said first logical volume and said second logical volume.

34. (New) The method of claim 26, wherein said control unit comprises at least one disk adapter, and wherein said at least one disk adapter performs the step of creating a copy of data in said first logical volume into said second logical volume.

35. (New) The method of claim 26, wherein said copying said data from said first location in said memory to a second location in said memory further comprises:

reading data from said first location in said memory into a location within an address change unit;

exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and

writing said data to said second location in said memory.

36. (New) The method of claim 26, wherein said control unit comprises at least one disk adapter, and wherein said at least one disk adapter comprises said address change unit.

37. (New) A method for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said method comprising:

creating a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:
copying data from said first logical volume to a first location into a memory;
copying said data from said first location in said memory to a second location in said memory; and
copying said data from said second location in said memory to said second logical volume.

38. (New) A method for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said method comprising:

copying data read from said first logical volume into a memory located within a control unit and thereupon writing said data to said second logical volume; and
wherein said copying said data from a first location in said memory to a second location in said memory is performed by a control unit.

39. (New) A computer system comprising a plurality of storage devices, a control unit operable to control said storage devices, and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said control unit operatively disposed to:

create a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:
copy data from said first logical volume to a first location in said memory;
copy said data from said first location in said memory to a second location in said memory; and
copy said data from said second location in said memory to said second logical volume.

40. (New) The computing system of claim 39 wherein said copy said data from said first location in said memory to a second location in said memory further comprises:

reading data from said first location in said memory into a location within an address change unit;

exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and

writing said data to said second location in said memory.

41. (New) The computing system of claim 39 wherein said buffer further comprises 10 Gigabytes of storage.

42. (New) The computing system of claim 39 wherein said plurality of storage devices further comprises a RAID.

43. (New) The computing system of claim 39 further comprising a display, said display operable to depict information about said storage devices.

44. (New) The computing system of claim 39, wherein said control unit further comprises a data recovery and reconstruct (DRR), said DRR operative to copy said data from said first location in said memory to a second location in said memory; and thereupon change a volume number associated with said data.

45. (New) The method of claim 39, wherein said control unit comprises at least one disk adapter, and wherein said at least one disk adapter is configured to create said copy of data in said first logical volume into said second logical volume.

46 (New) The method of claim 40, wherein said control unit comprises at least one disk adapter, and wherein said at least one disk adapter comprises said address change unit.

47 (New) A computer program product for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said computer program product comprising:

code for creating a copy of data in said first logical volume into said second logical volume; said code for creating a copy further comprising:

code for copying data from said first logical volume to a first location into a memory;

code for copying said data from said first location in said memory to a second location in said memory;

code for copying said data from said second location in said memory to said second logical volume; and

a computer readable storage medium for holding the codes.

48. (New) A computer program product for controlling the copying of information from a first logical volume to a second logical volume in a computer system, said computer program product comprising:

code for copying data read from said first logical volume into a memory located within a control unit and thereupon writing said data to said second logical volume; and

wherein said copying said data from said first location in said memory to a second location in said memory is performed by said control unit; and

a computer readable storage medium for holding the codes.

49. (New) The computer program product of claim 48 further comprising:

code for displaying information about said first logical volume and said second logical volume.

50. (New) A control unit for controlling the copying of information, said control unit operable in a computing system comprising at least one of a plurality of storage devices, said control unit operable to control said storage devices, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said control unit comprising a memory operable

to temporarily store data read from said storage devices within said control unit, said control unit operatively disposed to:

copy data read from said first logical volume into said memory located within said control unit; and

copy said data from said memory to a different location within said memory, changing a volume identifier associated with said data, and thereupon writing said data to said second logical volume.

51. (New) A computer system comprising a plurality of storage devices, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, a cache memory operable to temporarily store data, and a control unit operable to store and retrieve data from said storage devices on behalf of said processing units;

wherein said control unit is further operable to copy data from a first logical volume to a second logical volume;

wherein said control unit copies said data from said first logical volume to a first location in said cache memory;

whereupon a data recovery unit within said control unit is operable to create a copy of said data in said first location in said cache memory to a buffer memory within said data recovery unit, and thereupon to copy said data from said buffer memory within said data recovery unit into a second location in said cache memory; and thereupon to copy said data from said second location in said cache memory to said second logical volume.

52 (New) The computer system of claim 51 wherein said data comprises a logical address section, said logical address section having a data content that is changed during said copying between said cache memory and said buffer memory.

53. (New) A method for creating a copy of data in a system comprising a plurality of storage devices, a control unit operable to control said storage devices, said control unit comprising at least one disk adapter and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said method comprising:

said at least one disk adapter creating a copy of data in said first logical volume into said second logical volume; said creating a copy further comprising:

- copying data from said first logical volume to a first location in said memory;
- copying said data from said first location in said memory to a second location in said memory;
- copying said data from said second location in said memory to said second logical volume.

54. (New) The method of claim 53, wherein said system comprises at least one of a plurality of processing units operable to access said control unit, and wherein said copying said data from said first location in said memory to a second location in said memory is performed by said at least one disk adapter substantially independently of said processing units.

55. (New) The method of claim 53, wherein said disk adapter comprises an address change unit, and wherein said copying said data from said first location in said memory to a second location in said memory further comprises:

- reading data from said first location in said memory into a buffer location within said address change unit;
- exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and
- writing said data to said second location in said memory.

56. (New) A computer system comprising a plurality of storage devices, a control unit operable to control said storage devices, said control unit comprising at least one disk adapter and a memory operable to temporarily store data read from said storage devices within said control unit, said storage devices addressable as at least one of a plurality of logical volumes, including a first logical volume and a second logical volume, said at least one disk adapter operatively disposed to:

create a copy of data in said specified first logical volume into said second logical volume; said creating a copy further comprising:

copy data from said first logical volume to a first location in said memory;

copy said data from said first location in said memory to a second location in said memory;

copy said data from said second location in said memory to said second logical volume.

57. (New) The system of claim 56, comprising wherein said system comprises at least one of a plurality of processing units operable to access said control unit, and wherein said copying said data from said first location in said memory to a second location in said memory is performed by said at least one disk adapter substantially independently of said processing units.

58. (New) The method of claim 56, wherein said disk adapter comprises an address change unit, and wherein said copying said data from said first location in said memory to a second location in said memory further comprises:

reading data from said first location in said memory into a buffer location within said address change unit;

exchanging a logical address within said data from an address corresponding to said first logical volume to an address corresponding to said second logical volume; and

writing said data to said second location in said memory.